AMENDMENTS TO THE SPECIFICATION:

Please replace the paragraph on page 3 beginning at line 7, with the following amended paragraph:

--A multiple quantum well active layer 110 is formed on the Si-doped n-type GaN optical confinement layer 109, wherein the multiple quantum well active layer 110 includes Si-doped n-type $In_{0.15}Ga_{0.85}N$ well layers having a thickness of 3.5 nanometers and Si-doped n-type $In_{0.02}Ga_{0.98}N$ potential barrier layers having a thickness of 10.5 ~~micrometers~~ nanometers. An Mg-doped p-type $Al_{0.2}Ga_{0.8}N$ cap layer 111 having a thickness of 20 nanometers is formed on the multiple quantum well active layer 110. An Mg-doped p-type GaN optical confinement layer 112 having a thickness of 0.1 millimeter is formed on the Mg-doped p-type $Al_{0.2}Ga_{0.8}N$ cap layer 111.--

Please replace the last paragraph on page 5 beginning at line 19, with the following amended paragraph:

--Those layers 122, 123, 124, 125, 126, 127, and 128 were formed by a low pressure metal organic vapor phase epitaxy method under a pressure of 200 hPa. A partial pressure of the ammonium gas for nitrogen source was maintained at 147 hPa. TMG (trimethyl gallium) was used for the Ga source material. TMA (trimethyl aluminum) was used for the Al source material. TMI (trimethyl indium) was used for the In source material. The

growth temperature was maintained at 1050℃ except when the InGaN multiple quantum well active layer 124 was grown. In the growth of the InGaN multiple quantum well active layer 124, the growth temperature was maintained at 780℃.--

Please replace the first paragraph on page 8 with the following amended paragraph:

--In Applied Physics Letter, vol. 71, p.2608, 1997, Chow et al. addressed that the compositional fluctuation makes the gain spectrum wide, whereby the gain peak is lowered and [[he]] the threshold current density is dropped.--

Please replace the last paragraph on page 8 beginning at line 21, with the following amended paragraph:

--The above Japanese publication is silent on the important issue of further reduction of the photo-luminescent peak wavelength distribution from 90 meV. The effect of the indium compositional fluctuation to the device performances had not sufficiently [[be]] been clarified. The fundamental question on the compositional fluctuation of the InGaN quantum well in the active layer had also not been ~~outstanding~~ sufficiently clarified.--

Please replace the last paragraph on page 33, beginning at line 14, with the following amended paragraph:

--There are two main reasons for deteriorating the semiconductor laser device. One is the deterioration of the

facet. Another is the increase in the defects of the active layer. The facet deterioration is also so called to as impact deterioration, wherein the current laser emission is instantaneously discontinued. The increase in the defects of the active layer is gentle and not instantaneous, for which reason the operating current is gradually decreased. It was already confirmed that the conventional laser diode shown in FIG. 1 shows a gradual decrease in the operating current due to the gradual increase the defects of the active layer. In order to realize the long life-time of the device, it is effective to prevent the increase ~~the~~ of defects of the active layer.--

Please replace the first paragraph on page 34, with the following amended paragraph:

--The fluctuations in the compositions and in the band gap energy of the active layer might generate local strains in the active layer. Those local strains cause defects in the active layer upon receipt of energy from heat, photons and carriers in the device operation at a high temperature. The present inventors considered that in order to realize ~~the~~ a longer life-time [[of]] for the device, it is effective to reduce the fluctuations in the compositional profile and band gap energy profile of the active layer.--

Please replace the paragraph at page 43, line 10, with the following amended paragraph:

--Under the different condition that the indium-compositional fluctuation is the "microscopic fluctuation" or the spatial scale of the compositional fluctuation is in the sub-micron order or smaller order or even that no compositional macroscopic fluctuation in the ~~micron~~ order of one micron or larger order is present, it is theoretically just inherent or nature that the carriers are flown into the potential valleys provided by the potential fluctuations, and are localized and concentrated in the potential valleys, thereby causing inverted populations in localized areas corresponding to the potential valleys. The compositional "microscopic fluctuation" contributes to improve the characteristic of the laser diode. Throughout the specification, the "compositional fluctuation" associated with the present invention is the "microscopic fluctuation" or the spatial variation in composition in the sub-micron order scale or small scale.--

Please replace the last paragraph on page 60, bridging pages 60 and 61, with the following amended paragraph:

--It is possible that the thermally excited carriers are captured in the defects or the non-radiation center. The probability of capturing the electrons is given by Nvs, where "N" is the density of the defects, "v" is the thermal velocity and

"s" is the capture cross sectioned area. If the attention is drawn only onto the temperature dependency, then the thermal velocity is proportional to a square root of the temperature. Namely, Nvs = $AT^{1/2}$ is established. If the temperature is increased, the non-radiation recombination frequently appears based on the above mechanism. The recombination velocity of the carriers depends on $AT^{1/2}exp(-T_0/T)$. Namely, the recombination velocity of the carriers is given by the second term of the above equation. The parameter T0 is obtainable by the above fitting process. This parameter T0 is an index parameter for the degree of the "microscopic fluctuation" of the indium component profile. For example, T0 is 460K which is obtained from the ~~pitting~~ fitting process based on FIG. 11.--

Please replace the last paragraph on page 71, beginning at line 24, with the following amended paragraph:

--The mirror loss can be obtained from the laser oscillation conditions and the above first and second reflectances R1 and R2. The mirror loss "α_m" is given by α_m = $1/2L \times ln(1/R1/R2)$, where "L" is the cavity length. The mirror loss can be obtained from the reflectances [[an]] and the length of the cavity.--

Please replace the first paragraph on page 74 with the following amended paragraph:

--A multiple quantum well active layer 24 was formed on a top surface of the n-type optical confinement layer 23, wherein the multiple quantum well active layer 24 comprises three $In_{0.2}Ga_{0.8}N$ well layers having a thickness of 4 nanometers and Si-doped $In_{0.05}Ga_{0.95}N$ potential barrier layers having a silicon impurity concentration of 5×10^{18} cm^{-3} and a thickness of 5 ~~micrometers~~ nanometers. A cap layer 25 was formed on a top surface of the multiple quantum well active layer 24, wherein the cap layer 25 comprises an Mg-doped p-type $Al_{0.2}Ga_{0.8}N$ layer. An undoped optical confinement layer 26 was formed on a top surface of the cap layer 25, wherein the undoped optical confinement layer 26 comprises an undoped GaN layer having a thickness of 0.1 micrometer. A p-type cladding layer 27 was formed on a top surface of the undoped optical confinement layer 26, wherein the p-type cladding layer 27 comprises an Mg-doped p-type $Al_{0.1}Ga_{0.9}N$ layer having a magnesium impurity concentration of 2×10^{17} cm^{-3} and a thickness of 0.5 micrometers.--

Please replace the paragraph on page 79 beginning at line 11, with the following amended paragraph:

--A single quantum well active layer 44 was formed on a top surface of the n-type optical confinement layer 43, wherein

the single quantum well active layer 44 comprises a single $In_{0.2}Ga_{0.8}N$ well layer having a thickness of 3 nanometers and Si-doped $In_{0.05}Ga_{0.95}N$ potential barrier layers having a silicon impurity concentration of 5×10^{18} cm^{-3} and a thickness of 5 ~~micrometers~~ nanometers. A cap layer 45 was formed on a top surface of the multiple quantum well active layer 44, wherein the cap layer 45 comprises an Mg-doped p-type $Al_{0.2}Ga_{0.8}N$ layer.--